

REMARKS

In view of the foregoing amendments and the following remarks, Applicant respectfully requests reexamination of the present application. Claim 1 has been amended, and new Claims 5-12 have been added. No claims have been cancelled.

Applicant acknowledges with appreciation that the Examiner has indicated that Claim 4 would be allowable if rewritten in independent form.

Applicant has amended independent Claim 1 by making the following changes:

- amending 'a funnel forming the lower end of the tubing string' to read 'a funnel connected with the lower end of the tubing string', so that the funnel and the tubing string are now referred to as "distinct components", although they form a unitary structure;
- reciting that the funnel extends 'downwardly and outwardly from the lower end of the tubing string' and combines with the casing string to form a gap for providing fluid communication between the lower end of the casing string bore and the annulus lower portion';
- substituting 'conduit means' for 'a tube', to broaden this element, and reciting that its inlet communicates with the 'upper end' of the annulus lower portion;
- deleting the limitation that the conduit means outlet is 'upwardly directed';
- adding that the conduit means functions 'to convey pressurized gas from the annulus lower portion into the production bore'; and
- deleting the non-structural and unnecessary last clause.

Applicant has rewritten the dependent claims for the following reasons:

- to recite 'conduit means' instead of 'tube' in come claims;
- to recite that the gap is 'annular';
- to remove the non-structural statement about the jet of gas; and
- to recite that the conduit means outlet is positioned within the funnel

passageway and above the bottom of the funnel.

Applicant has amended the disclosure to bring it into correspondence with amended Claim 1 and to better lend support thereto.

It will be noted that these changes in the disclosure were supported in the original specification as follows:

- at page 2, line 17: the connection of the funnel with the lower end of the tubing string is supported by Figure 2;
- at page 2, line 19: the outward downward widening of the funnel is supported by Figure 2;
- at page 2, line 20: the formation of a narrow annular gap, connecting the lower end of the casing string bore and the annulus lower portion, is supported by Figure 2;
- at page 3, between original lines 3 and 4: a paragraph has been added to identify the structural surfaces that form the lower portion of the annulus – this is supported by Figure 2; and
- at page 3, line 9: a sentence is added clarifying the function of the tube – this is supported at page 7, lines 3 – 5.

Before dealing with the Examiner's rejections, it is useful to summarize some aspects of how Applicant's assembly works:

- the funnel, at its bottom, extends transversely across most of the casing bore, so that most of the produced fluid is channeled thereby into the tubing string;
- some of the produced gas and a relatively small quantity of water and sand rise through the annular gap into the lower portion of the annulus (said portion basically being an open-bottomed "chamber" defined by the outside surfaces of the funnel and the lower end of the tubing string, the base of the packer and the inside surface of the casing string) – the gas separates and rises to form a column at the upper end of this chamber, the water/sand remaining beneath the gas;

- the gas in the chamber builds up in pressure, as gas continues to enter the chamber, and periodically discharges through the tube into the tubing string/funnel production bore, thereby providing some gas lift assistance in said bore – this occurs with frequency because the ‘chamber’ is short.

Applicant points out that the following recitations appear in amended Claim 1:

- that the funnel extends downwardly and outwardly from the lower end of the tubing string and combines with the casing string to form a gap, preferably annular, that provides an opening for fluid passage between the casing string bore and the ‘chamber’ or lower portion of the annulus; and
- that a conduit means connects the top end of the chamber, (where the gas under pressure collects), with the production bore, so that pressurized gas (not water/solids) can move into the production bore to perform a gas lift function.

Section 103 Rejection

The Examiner has rejected Claims 1-3 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 1,238,165 by Lynn in view of U.S. Patent No. 6,026,904 by Burd et al.

The Examiner states that regarding Claim 1, Lynn discloses a production string (3), a funnel (1), an annulus (generally at 4), a packer means (2) above the funnel and a tube (5) having an inlet (at 6) communicating with the annulus and an outlet communicating with the production bore. The Examiner states that Lynn discloses an uncased wellbore. The Examiner also states that Burd teaches use of a cased wellbore (14) to stabilize the subterranean zone. The Examiner states that it would have been obvious to one having ordinary skill in the art at the time of the invention to arrange for the wellbore disclosed by Lynn to be cased as taught by Burd et al. to stabilize the formation since the use of a casing in a wellbore is well known in the art.

The Examiner states that as to Claim 2, Lynn discloses a restrictive orifice (upper portion of 5 at production bore).

The Examiner states that as to Claim 3, Lynn discloses the bottom inlet (3 below 4) of the funnel is spaced below the packer (2).

Applicant respectfully traverses this rejection for the following reasons.

Lynn discloses a gas relief valve assembly comprising a packer 2; tubing 3 extending up from the packer; a body 1 extending down from the packer and having a duct 5 on one side; a tubing tail pipe 3 extending down from the body; the duct containing a valve ball 7 and seat; whereby, the tail pipe extends down into a column of produced liquid; gas accumulates above the column of liquid and, as gas pressure increases, can unseat the ball and enter the production bore through the duct.

However, Applicant notes that Lynn does not teach an open-bottomed funnel extending downwardly and outwardly from the tubing string to form a gap, preferably annular, with the casing string so that the gap provides for fluid communication between the lower end of the casing bore and the lower portion of the annulus; nor does Lynn teach a conduit means, having an inlet communicating with the upper end of the lower portion of the annulus and an outlet communicating with the production bore; all as set forth in amended Claim 1.

Furthermore, Lynn fails to teach any of the features recited in applicant's dependent claims namely, the conduit means having a restrictive orifice as its outlet; the conduit outlet being positioned within the funnel passageway and above the bottom end of the funnel; the gap being annular; the funnel being conical; or the conduit means extending through the packer.

The Burd reference has been cited to show that it is common to case a wellbore, which applicant acknowledges.

However, it is submitted that Burd does not otherwise provide information relevant to resolving the shortcomings of Lynn.

The fee for the additional claims (large entity) is calculated below:

For	Claims Remaining After Amendment	Highest Number Previously Paid For		Extra Claims	Rate		Additional Fee
Total Claims	26	-20	=	6	x \$50	=	\$300
Independent Claims	1	-3	=	0	x \$	=	\$0
Multiple Dep. Claim		-0	\$360			=	\$
Total Fee						=	\$300

Applicant notes that the multiple dependent claim fee was previously paid in this application. A check in the amount of \$300 for the payment of this fee accompanies this response. Please charge any underpayment and credit any overpayment to Deposit Account No. 50-1419.

Applicants do not believe that any additional fees are due with this Response. However, if any such fees are due, please debit those fees from Deposit Account No. 50-1419.

Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecute and or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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